What is claimed is:

1. A printed wiring board-forming sheet comprising a resin sheet having a through hole in the thickness direction and a conductive metal chip having a shape substantially corresponding to the through hole and being inserted in the through hole.

2. The printed wiring board-forming sheet as claimed in claim 1, wherein the conductive metal chip is so inserted in the through hole that the chip is flush with the resin sheet.

3. The printed wiring board-forming sheet as claimed in claim 1, wherein the conductive metal chip is so inserted in the through hole that the chip protrudes from at least one surface of the resin sheet.

4. The printed wiring board-forming sheet as claimed in claim 1, wherein the conductive metal chip comprises a metal or a composite metal punched from at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

5. The printed wiring board-forming sheet as claimed in claim 1, wherein the resin sheet is formed from an insulating resin.

6. The printed wiring board-forming sheet as claimed in claim 5, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

7. A via hole-forming method, which uses a punch and a die having a base with a die hole and which comprises so superposing a resin sheet and a conductive metal sheet on the base that the resin sheet is on the base side, allowing the punch to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, further punching the resin sheet by means of a chip of the conductive metal sheet thus punched, and locating the chip of the conductive metal sheet in the punched hole formed in the resin sheet.

8. The via hole-forming method as claimed in claim 7, wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

9. The via hole-forming method as claimed in claim 7, wherein the resin sheet is formed from an insulating resin.

10. The via hole-forming method as claimed in claim 9, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

11. The via hole-forming method as claimed in claim 7, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

12. A via hole-forming method, which uses a punch and a die having a base with a die hole and which comprises so superposing on the base a resin sheet and a conductive metal sheet having a larger thickness

than the resin sheet that the resin sheet is on the base side, allowing the punch to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, further punching the resin sheet by means of a chip of the conductive metal sheet thus punched, and so inserting the chip of the conductive metal sheet in the punched hole formed in the resin sheet that at least one tip of the chip protrudes from the surface of the resin sheet.

13. The via hole-forming method as claimed in claim 12, wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

14. The via hole-forming method as claimed in claim 12, wherein the resin sheet is formed from an insulating resin.

15. The via hole-forming method as claimed in claim 12, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

16. The via hole-forming method as claimed in claim 12, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

17. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a punch and a die having a base with a die hole and which comprises:

a feeding step wherein a resin sheet and a conductive metal sheet superposed on the resin sheet are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, then the resin sheet is punched by means of a chip of the conductive metal sheet thus punched, and the chip of the conductive metal sheet is located in the punched hole formed in the resin sheet.

18. The process for producing a resin sheet having a filled via hole as claimed in claim 17,

wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

19. The process for producing a resin sheet having a filled via hole as claimed in claim 17, wherein the resin sheet is formed from an insulating resin.

20. The process for producing a resin sheet having a filled via hole as claimed in claim 19, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

21. The process for producing a resin sheet having a filled via hole as claimed in claim 19, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

22. The process for producing a resin sheet having a filled via hole as claimed in claim 17, which

includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

23. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a punch and a die having a base with a die hole and which comprises:

a step wherein a punched hole of a necessary pattern is formed in a resin sheet,

a feeding step wherein the resin sheet having the punched hole formed therein and a conductive metal sheet superposed on the resin sheet are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, and a chip of the conductive metal sheet thus punched is located in the punched hole previously formed in the resin sheet.

24. The process for producing a resin sheet having a filled via hole as claimed in claim 23,

wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

25. The process for producing a resin sheet having a filled via hole as claimed in claim 23, wherein the resin sheet is formed from an insulating resin.

26. The process for producing a resin sheet having a filled via hole as claimed in claim 25, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

27. The process for producing a resin sheet having a filled via hole as claimed in claim 23, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

28. The process for producing a resin sheet having a filled via hole as claimed in claim 23, which

includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

29. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a punch and a die having a base with a die hole and which comprises:

a feeding step wherein a resin sheet having a conductor layer formed on one surface and a conductive metal sheet superposed on the resin sheet are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, then the resin sheet is punched by means of a chip of the conductive metal sheet thus punched, and the chip of the conductive metal sheet is so located in the punched hole formed in the resin sheet that the chip comes into contact with the conductor layer.

30. The process for producing a resin sheet having a filled via hole as claimed in claim 29, which

includes an etching step wherein a necessary wiring pattern is formed from the conductor layer.

31. The process for producing a resin sheet having a filled via hole as claimed in claim 29, wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

32. The process for producing a resin sheet having a filled via hole as claimed in claim 29, wherein the resin sheet is formed from an insulating resin.

33. The process for producing a resin sheet having a filled via hole as claimed in claim 32, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

34. The process for producing a resin sheet having a filled via hole as claimed in claim 29, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of

a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

35. The process for producing a resin sheet having a filled via hole as claimed in claim 29, which includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

36. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a punch and a die having a base with a die hole and which comprises:

a step wherein a punched hole of a necessary pattern is formed in a resin sheet having a conductor layer formed on one surface,

a feeding step wherein the resin sheet having the punched hole formed therein and a conductive metal sheet superposed on the resin sheet are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, and a chip of the conductive metal sheet thus

punched is so located in the punched hole previously formed in the resin sheet that the chip comes into contact with the conductor layer.

37. The process for producing a resin sheet having a filled via hole as claimed in claim 36, which includes an etching step wherein a necessary wiring pattern is formed from the conductor layer.

38. The process for producing a resin sheet having a filled via hole as claimed in claim 36, wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

39. The process for producing a resin sheet having a filled via hole as claimed in claim 36, wherein the resin sheet is formed from an insulating resin.

40. The process for producing a resin sheet having a filled via hole as claimed in claim 39, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene

sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

41. The process for producing a resin sheet having a filled via hole as claimed in claim 36, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

42. The process for producing a resin sheet having a filled via hole as claimed in claim 36, which includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

43. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a punch and a die having a base with a die hole and which comprises:

a feeding step wherein a resin sheet having conductor layers formed on both surfaces and a conductive metal sheet superposed on the resin sheet

are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, then the resin sheet is punched by means of a chip of the conductive metal sheet thus punched, and the chip of the conductive metal sheet is so located in the punched hole formed in the resin sheet that the chip comes into contact with both the conductor layers.

44. The process for producing a resin sheet having a filled via hole as claimed in claim 43, which includes an etching step wherein a necessary wiring pattern is formed from each of the conductor layers.

45. The process for producing a resin sheet having a filled via hole as claimed in claim 43, wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

46. The process for producing a resin sheet having a filled via hole as claimed in claim 43, wherein the resin sheet is formed from an insulating resin.

47. The process for producing a resin sheet having a filled via hole as claimed in claim 46, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

48. The process for producing a resin sheet having a filled via hole as claimed in claim 43, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

49. The process for producing a resin sheet having a filled via hole as claimed in claim 43, which includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

50. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a

punch and a die having a base with a die hole and which comprises:

a step wherein a punched hole of a necessary pattern is formed in a resin sheet having conductor layers formed on both surfaces,

a feeding step wherein the resin sheet having the punched hole formed therein and a conductive metal sheet superposed on the resin sheet are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, and a chip of the conductive metal sheet thus punched is so located in the punched hole previously formed in the resin sheet that the chip comes into contact with both the conductor layers.

51. The process for producing a resin sheet having a filled via hole as claimed in claim 50, which includes an etching step wherein a necessary wiring pattern is formed from each of the conductor layers.

52. The process for producing a resin sheet having a filled via hole as claimed in claim 50,

wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

53. The process for producing a resin sheet having a filled via hole as claimed in claim 50, wherein the resin sheet is formed from an insulating resin.

54. The process for producing a resin sheet having a filled via hole as claimed in claim 53, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

55. The process for producing a resin sheet having a filled via hole as claimed in claim 50, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

56. The process for producing a resin sheet having a filled via hole as claimed in claim 50, which

includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

57. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a punch and a die having a base with a die hole and which comprises:

a feeding step wherein a resin sheet and a conductive metal sheet having a larger thickness than the resin sheet, said conductive metal sheet being superposed on the resin sheet, are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, then the resin sheet is punched by means of a chip of the conductive metal sheet thus punched, and the chip of the conductive metal sheet is so located in the punched hole formed in the resin sheet that a tip of the chip protrudes outside the punched hole.

58. The process for producing a resin sheet having a filled via hole as claimed in claim 57, which

includes a step wherein a wiring pattern that is electrically connected to the non-protruded side of the chip located in the punched hole is formed on one surface of the resin sheet.

59. The process for producing a resin sheet having a filled via hole as claimed in claim 57, which includes an etching step wherein a necessary wiring pattern is formed from each of the conductor layers.

60. The process for producing a resin sheet having a filled via hole as claimed in claim 57, wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

61. The process for producing a resin sheet having a filled via hole as claimed in claim 57, wherein the resin sheet is formed from an insulating resin.

62. The process for producing a resin sheet having a filled via hole as claimed in claim 61, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene

sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

63. The process for producing a resin sheet having a filled via hole as claimed in claim 57, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

64. The process for producing a resin sheet having a filled via hole as claimed in claim 57, which includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

65. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a punch and a die having a base with a die hole and which comprises:

a step wherein a punched hole of a necessary pattern is formed in a resin sheet,

a feeding step wherein the resin sheet having the punched hole formed therein and a conductive metal

sheet having a larger thickness than the resin sheet, said conductive metal sheet being superposed on the resin sheet, are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, and a chip of the conductive metal sheet thus punched is so located in the punched hole previously formed in the resin sheet that a tip of the chip protrudes outside the punched hole.

66. The process for producing a resin sheet having a filled via hole as claimed in claim 65, which includes a step wherein a wiring pattern that is electrically connected to the non-protruded side of the chip located in the punched hole is formed on one surface of the resin sheet.

67. The process for producing a resin sheet having a filled via hole as claimed in claim 65, which includes an etching step wherein a necessary wiring pattern is formed from each of the conductor layers.

68. The process for producing a resin sheet having a filled via hole as claimed in claim 65, wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

69. The process for producing a resin sheet having a filled via hole as claimed in claim 65, wherein the resin sheet is formed from an insulating resin.

70. The process for producing a resin sheet having a filled via hole as claimed in claim 69, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

71. The process for producing a resin sheet having a filled via hole as claimed in claim 65, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

72. The process for producing a resin sheet having a filled via hole as claimed in claim 65, which includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

73. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a punch and a die having a base with a die hole and which comprises:

a feeding step wherein a resin sheet having a conductor layer formed on one surface and a conductive metal sheet having a larger thickness than the resin sheet, said conductive metal sheet being superposed on the resin sheet, are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, then the resin sheet is punched by means of a chip of the conductive metal sheet thus punched, and the chip of the conductive metal sheet is so located in the punched hole formed in the resin sheet that the

chip comes into contact with the conductor layer and that a tip thereof protrudes outside the punched hole.

74. The process for producing a resin sheet having a filled via hole as claimed in claim 73, which includes an etching step wherein a necessary wiring pattern is formed from each of the conductor layers.

75. The process for producing a resin sheet having a filled via hole as claimed in claim 73, wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

76. The process for producing a resin sheet having a filled via hole as claimed in claim 73, wherein the resin sheet is formed from an insulating resin.

77. The process for producing a resin sheet having a filled via hole as claimed in claim 76, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

78. The process for producing a resin sheet having a filled via hole as claimed in claim 73, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

79. The process for producing a resin sheet having a filled via hole as claimed in claim 73, which includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

80. A process for producing a resin sheet having a filled via hole filled with a metal, which uses a punch and a die having a base with a die hole and which comprises:

a step wherein a punched hole of a necessary pattern is formed in a resin sheet having a conductor layer formed on one surface,

a feeding step wherein the resin sheet having the punched hole formed therein and a conductive metal sheet having a larger thickness than the resin sheet,

said conductive metal sheet being superposed on the resin sheet, are so fed onto the base that the resin sheet is on the base side, and

a punching step wherein the punch is allowed to get close relatively to the base and get away relatively from the base to punch the conductive metal sheet, and a chip of the conductive metal sheet thus punched is so located in the punched hole previously formed in the resin sheet that the chip comes into contact with the conductor layer and that a tip thereof protrudes outside the punched hole.

81. The process for producing a resin sheet having a filled via hole as claimed in claim 80, which includes an etching step wherein a necessary wiring pattern is formed from the conductor layer.

82. The process for producing a resin sheet having a filled via hole as claimed in claim 80, wherein the punch is fabricated so as to be integrated with the die having a base with a die hole.

83. The process for producing a resin sheet having a filled via hole as claimed in claim 80,

wherein the resin sheet is formed from an insulating resin.

84. The process for producing a resin sheet having a filled via hole as claimed in claim 83, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

85. The process for producing a resin sheet having a filled via hole as claimed in claim 80, wherein the conductive metal sheet comprises at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

86. The process for producing a resin sheet having a filled via hole as claimed in claim 80, which includes a step wherein a wiring pattern that is electrically connected to the chip located in the punched hole is formed on both surfaces of the resin sheet.

87. A resin sheet having a filled via hole, comprising a resin sheet having a through hole in the thickness direction and having a conductor layer formed on at least one surface and a conductive metal chip inserted in the through hole and having a shape substantially corresponding to the through hole.

88. The resin sheet having a filled via hole as claimed in claim 87, wherein the conductive metal chip is so inserted in the through hole that the chip is flush with the resin sheet.

89. The resin sheet having a filled via hole as claimed in claim 87, wherein the conductive metal chip is so inserted in the through hole that the chip protrudes from at least one surface of the resin sheet.

90. The resin sheet having a filled via hole as claimed in claim 87, wherein the conductive metal chip comprises a metal or a composite metal punched from at least one metal sheet selected from the group consisting of a solder sheet, a copper sheet, a copper alloy sheet, and a solder plated metal sheet.

91. The resin sheet having a filled via hole as claimed in claim 87, wherein the resin sheet is formed from an insulating resin.

92. The resin sheet having a filled via hole as claimed in claim 91, wherein the resin sheet is formed from at least one insulating resin selected from the group consisting of polyimide, polyester, polypropylene, polyphenylene sulfide, polyvinylidene chloride, Eval, glass epoxy and a BT resin.

93. A device for forming a conductive metal chip-inserted via hole, comprising a die having a base with a die hole and a punch provided at the position corresponding to the die hole and capable of vertical moving relatively to the base, wherein the die and the punch are so arranged that by placing a resin sheet and a conductive metal sheet on the base in this order and then allowing the punch to get close relatively to the base, a punched hole can be formed in the conductive metal sheet, and the moving position of the punch is so controlled that the punch is capable of stopping at such a position that a chip of the conductive metal sheet thus punched can be inserted in a punched hole formed in the resin sheet.

94. The device for forming a conductive metal chip-inserted via hole as claimed in claim 93, wherein the base with a die hole is a lower part of the die and the punch is provided on an upper part of the die, said upper part being capable of getting close relatively to the lower part of the die and getting away relatively from the lower part of the die.

95. The device for forming a conductive metal chip-inserted via hole as claimed in claim 93, wherein the moving position of the punch is so controlled that the punch is capable of stopping at such a position that the lower end of the punch and the upper surface of the resin sheet placed on the base are almost flush with each other.

96. The device for forming a conductive metal chip-inserted via hole as claimed in claim 93, wherein the punch has a first stop-position control means which serves not only to punch the conductive metal sheet placed on the resin sheet having a punched hole previously formed, said resin sheet being placed on the base, but also to stop the punch at such a position that the punched conductive metal chip can be

inserted in the punched hole formed in the resin sheet, and a second stop-position control means which serves to form a punched hole in the resin sheet prior to insertion of the conductive metal chip.

97. A printed wiring board comprising an insulating substrate and conductor layers provided on at least both surfaces of the substrate, wherein the substrate has a through hole formed by a punching press, the through hole is filled with a conductor by a punching press, and the conductor is electrically connected to the conductor layers.

98. The printed wiring board as claimed in claim 97, wherein the insulating substrate has a through hole formed in the thickness direction and has a conductor layer on at least one of the front and back surfaces, the through hole is filled with a conductor by a punching press, and the conductor is electrically connected to at least a part of the conductor layer formed on at least one of the front and back surfaces of the insulating substrate.

99. The printed wiring board as claimed in claim 98, which is obtained by so superposing the insulating

substrate having a conductor layer on at least one of the front and back surfaces and a conductor sheet on a base having a die hole that the insulating substrate is on the base side, punching the conductor sheet by means of a punch capable of getting close to the base and getting away from the base, further punching the insulating substrate by means of a chip of the conductor sheet thus punched to form a through hole and inserting the chip in the through hole to electrically connect the chip to at least a part of the conductor layer on at least one of the front and back surfaces of the substrate.

100. The printed wiring board as claimed in claim 98, which has a multi-layer structure of three or more layers including the conductor layer.

101. The printed wiring board as claimed in any one of claims 97 to 100, the conductor layer is formed from a metal.

102. The printed wiring board as claimed in claim 101, wherein the metal is at least one metal or alloy selected from the group consisting of lead, tin,

copper and alloys containing any of these metals as a main component.

103. The printed wiring board as claimed in claim 97, wherein the conductor filled in the through hole is a chip of a conductive metal sheet, which has been inserted in the through hole of the insulating substrate by placing the conductive metal sheet having a thickness equal to or larger than that of the insulating substrate on the surface of the insulating substrate having or not having a through hole and then punching the conductive metal sheet, or a chip of a conductive metal sheet, which has been inserted in the through hole by punching the conductive metal sheet similarly to the above and thereby punching the insulating substrate by means of a chip punched from the conductive metal sheet to form a through hole.

104. The printed wiring board as claimed in claim 97, wherein the conductor is so inserted in the through hole that the conductor is almost flush with the insulating substrate or protrudes from the surface of the insulating substrate.

105. A process for producing a printed wiring board, comprising providing a conductor layer comprising a wiring layer or a metal foil on at least one surface of an insulating substrate and then filling a through hole of the insulating substrate with a conductor by a punching press to electrically connect the conductor to at least a part of the conductor layer.

106. The process for producing a printed wiring board as claimed in claim 105, wherein an insulating substrate having a through hole formed in the thickness direction is used and the through hole is filled with the conductor by a punching press.

107. The process for producing a printed wiring board as claimed in claim 105, wherein the insulating substrate is subjected to punching to form a through hole in the thickness direction and the through hole is filled with a conductor by a punching press to electrically connect the conductor to at least a part of the conductor layer.

108. The process for producing a printed wiring board as claimed in claim 105, wherein the printed

wiring board has a multi-layer structure of three or more layers including the conductor layer.

109. The process for producing a printed wiring board as claimed in claim 105, wherein the conductor layer comprises a metal.

110. The process for producing a printed wiring board as claimed in claim 105, wherein the metal is at least one metal or alloy selected from the group consisting of lead, tin, copper and alloys containing any of these metals as a main component.

111. A printed wiring board comprising an insulating sheet having a wiring pattern formed on one or both surfaces and a conductor filled in a through hole that passes through the wiring pattern and the insulating sheet, wherein at least one end of the conductor protrudes from the aligned surface of the insulating sheet and/or the wiring pattern.

112. A multi-layer printed wiring board obtained by laminating plural printed wiring boards through insulating adhesive layers and press-bonding the plural printed wiring boards together, wherein each of

the printed wiring boards comprises an insulating sheet having a wiring pattern formed on one or both surfaces and a conductor filled in a through hole that passes through the wiring pattern and the insulating sheet, and at least one end of the conductor has a protrusion which protrudes from the aligned surface of the insulating sheet and/or the wiring pattern.

113. A process for producing a multi-layer printed wiring board, comprising:

preparing plural printed wiring boards each of which comprises an insulating sheet having a wiring pattern formed on one or both surfaces and having a through hole filled with a conductor, at least one end of said conductor protruding from the surface of the wiring patter and/or the insulating sheet,

laminating the plural printed wiring boards through insulating adhesive layers, and

press-bonding the laminated plural printed wiring boards to allow the conductor protrusion of each printed wiring board to penetrate the adhesive layer and come into contact with the wiring pattern and/or a conductive material of the neighboring printed wiring board so as to make electrical connection between the neighboring wiring patterns.

114. The process for producing a multi-layer printed wiring board as claimed in claim 113, wherein the through hole is formed by punching.

115. The process for producing a multi-layer printed wiring board as claimed in claim 113, wherein the through hole is formed by punching and the conductor is inserted in the through hole by a punching press.

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